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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,608	03/11/2004	Albert Jan Hendrik Klomp	081468-0308663	4060

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EXAMINER

MATHEWS, ALAN A

ART UNIT	PAPER NUMBER
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2851

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08/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/797,608	Applicant(s) KLOMP ET AL.	
	Examiner Alan A. Mathews	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 22-28 is/are rejected.
- 7) ☒ Claim(s) 15-21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet.</u> | 6) <input type="checkbox"/> Other: ____. |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/11/04 & 11/09/04 & 8/01/05 & 1/18/06 & 6/20/07.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1- 4, 6 – 10, 12, 14, and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Edo (U. S. Patent Application Publication No. 2003/0021671 A1, which is in the same family as EP 1,282,157 A2 used as a X reference in a European Search Report). Edo discloses in figures 1 and 2 and paragraphs # 0066 - # 0068, a load lock 3 (sometimes referred to by the typographical error “load rock chamber”) having an outer wall which accommodates a support unit 6 for the object (wafer) W. The valves 4 and 5 permit the object (wafer) W to be transferred (by transfer mechanism 8) between the lock 3 and the lithographic projection apparatus 20 (see paragraphs # 0066, #0080, and #0082). Paragraphs # 0076 and # 0077 and figures 3A and 3B disclose a temperature conditioned structure (heating element) 62 constructed and arranged to control the temperature of the object W to a desired temperature. With respect to claim 2, the temperature conditioned structure 62 is in the support unit 6. With respect to claims 3, 10, and 14, and 25-28, paragraph # 0123 and figure 5A discloses the use of a **fluid** such as a thermal regulated **gas or liquid** in holes 66 for circulation formed along a plurality of concentric circles in the chuck 6. The holes 66 would be lines allowing a

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temperature controlled fluid to flow therethrough. With respect to claim 4, figure 5A disclose a support unit 6 having a supply line and a drain line to provide a gas via holes 66 between the support unit 6 and the object W. With respect to claim 6, paragraph # 0070 discloses an exhaust pump. With respect to claim 7, paragraphs # 0091 to # 0105 discloses the first and second pressure. Element 30 is the controller. With respect to claim 12, the supporting structure 6 has an electrode 61 (figure 3B) which holds the substrate W against the body 6 (i.e. an electrostatic clamp). With respect to claims 25-28, figure 9 discloses the radiation system 99, patterning device 95, and projection system 97. The object handler includes transfer mechanism 8.

3. Claims 1-3, 6, 10, 22, and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Morita et al. (U. S. Patent No. 5,914,493). Morita et al. discloses in figures 1 and 2 and column 4, lines 28-67, an exposure processing chamber 1 of a lithographic apparatus, a load lock 3 having an outer wall defining a load lock volume accommodating a support unit 11 constructed and arranged to support object (wafer) 6. Load lock 3 has a gate valve to permit the object (wafer) 6 to be transferred between the load lock and the lithographic apparatus 1. The temperature conditioned structure which controls a temperature of the object includes heater (liquid or gas) 14 and pump 15 and circulation conduits 10 in the support unit 11 (see column 5, lines 1-47). In addition, the outer wall of the load lock 3 has flow conduits 12 (see column 4, lines 44-51). It is also noted that a second heater 13 could also be considered a temperature conditioned structure to control a temperature of the object. With respect to claim 10, figure 9 and column 7, lines 49-67, and column 8, lines 1-35 disclose an isothermal tank 150 with

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temperature controlled air. Element 152 in figure 9 is the support unit. With respect to claim 22, column 5, lines 42-45 disclose expansion of the load lock chamber.

4. Claims 1-6, 10, 14, and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese patent document 2001-222099 (cited in Applicant's IDS filed January 18, 2006, with an English translation being provided in this office action). The Japanese patent document 2001-222099 discloses in figure 4 and paragraphs # 0073, # 0074, # 0075, # 0076, and # 0077 of the English translation, a load lock 3 for a lithographic apparatus. The outer wall 16 accommodates a support unit 19 (19a and 19b) and element 15 constructed and arranged to support object (substrate) 1. Both figure 1 and figure 5 discloses using the load lock 3 (described in figure 4) being used with a lithographic apparatus 5. A transport device (robot) 9 transports the object (substrate) 1 between the load lock 3 and the lithographic apparatus 5 outside outer wall 16 of load lock 3. Tubes 17 are the temperature conditioned structure constructed and arranged to control a temperature of the object 1 to a desired temperature before the object 1 is transferred from the load lock 3 towards the lithographic apparatus 5. Paragraphs # 0043 and # 0081 disclose using the tubes 17 (or 17a and 7b) to control the temperature, with figure 4 showing these tubes 17 being used in the load lock 3. With respect to claim 2, the temperature conditioned structure 17 is in outer wall 16. With respect to claim 3, the tubes 17 comprise lines allowing a temperature controlled fluid to flow there through. With respect to claims 4 and 10, elements 21 and 22 in figure 4 are part of the gas supply line and element 20 is part of the drain line (see paragraphs # 0077, # 0078, # 0079, and # 0080). The gas is provided between support 15 and the object 1. Paragraph # 0089 discloses using inert gas to help control temperature.

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With respect to claim 5, the stage 40 protects the substrate during evacuation. With respect to claim 6, paragraph # 0077 discloses a vacuum pumping system connected to the load lock chamber 3. With respect to claims 25-28, the Abstract discloses a lens barrel 11 having various kinds of apertures, lenses. In addition, paragraphs # 0098 and # 0099, discloses different exposure equipment including masks etc.

5. Claims 1-3, 6, 7, 9, 22, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese patent document JP 09-246347 (cited in Applicant's IDS filed January 18, 2006, with an English translation provided with this action). The Japanese patent document JP 09-246347 discloses in figure 1 a load lock 8 having chambers 31 and 32 with outer walls defining a load lock volume. A supporting unit includes stage 40 for supporting object (wafer) 3. Passage 32b permits the object 3 to be transferred between the load lock and a lithographic apparatus. Heater 54 is the temperature conditioned structure constructed and arranged to control a temperature of the object 3. With respect to claim 2, elements 53 and 54 are considered to be at an outer wall. With respect to claim 3, figure 8 and paragraph # 0034 of the English translation discloses a cooler style 90 with lines allowing a temperature controlled fluid to flow therethrough. With respect to claim 6, paragraph # 0031 discloses that a pump is connected to the second unloading lock chamber 72. With respect to claim 7, paragraph # 0015, and claim 17 of the Japanese patent document JP 09-246347 disclose a first pressure and a second pressure. With respect to claim 9, element 38 is an opening. With respect to claim 22, figures 6 and 7 disclose moving support 40 (by way of stage drive 41) relative to the upper wall, which would be a volume decreasing device constructed and arranged to decrease said gas

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volume adjacent a surface of the object positioned on the support unit (see paragraph # 0025).

With respect to claim 23, element 51 is considered to be a ceiling plate.

6. Claims 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirayanagi et al. (U. S. Patent Application Publication No. 2001/0016302 A1). Hirayanagi et al. discloses in figure 1A and paragraphs # 0034 and # 0035, a lithography apparatus including an exposure optical system 18 and a support 14 to support substrate (wafer) 17. The body of the support 14 includes a supply line to supply a gas (heat-transfer gas) to the volume including channels 14B and 14B' and 14B''. Paragraph # 0037 discloses that the heat transfer gas (HTG) controls the temperature of the substrate 17 (suppresses thermal expansion) via gas in the volume. With respect to claim 11, paragraph # 0037 discloses a pressure of 2.7kPa, which is within the range claimed. With respect to claim 12, electrodes 15 clamps (via an electrostatic clamp) the substrate 17 to the body. With respect to claim 13, figure 1A shows a rim around the perimeter of support chuck 14. With respect to claim 14, elements 14B' and 14B'' are considered to be lines allowing a temperature controlled fluid to flow therethrough.

7. Claim 10 and 12 - 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamiya (U. S. Patent No. 5,563,683). Kamiya discloses in figures 2 and 3 and column 4, lines 30-67, and column 5, lines 1-21, a support structure WH to support substrate (wafer) W. The body WH includes a supply line 6A and 6B to supply a gas between the substrate W and the support. Column 3, lines 57-65, and column 7, lines 55-62, disclose controlling the temperature of the

substrate via the gas. The wafer is clamped onto the support. Figures 3A, 3B, and 3C disclose rims to seal the volume.

Allowable Subject Matter

8. Claims 15-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reasons for the indicated allowability of the claims are as follows:

The prior art does not disclose or suggest wherein said support structure comprises a stationary body and is arranged to rotate said body in use within said stationary body, said body and said stationary body defining a gap between them that is in communication with said volume, said stationary body having lines allowing a temperature controlled fluid to flow therethrough in combination with all the other elements recited in the parent claims to dependent claim 15.

The prior art does not disclose or suggest wherein said support unit is designed to cover substantially said object, in use, and comprises a connection structure constructed and arranged to connect said support unit to said outer wall in combination with all the other elements recited in the parent claims to dependent claim 19.

Conclusion

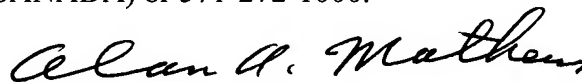
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. A machine translation of JP 11-135,416, and JP 10-092738 are cited to provide understanding of the two corresponding Japanese patent documents that were cited by Applicant in one of his IDSs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan A. Mathews whose telephone number is (571) 272-2123. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alan A. Mathews
Primary Examiner
Art Unit 2851

AM